Images in Cardiovascular Medicine

Huge Fresh Mobile Thrombus Attached to the Descending Thoracic Aorta

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Conflict of Interest

The authors have no financial conflicts of
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A healthy 48-year-old woman presented with new onset left side weakness. Brain magnetic resonance imaging showed new onset cerebral infarction in the left lateral medulla oblongata and occlusion of the left vertebral artery in the V3 to V4 segments. To find the cause of the cerebral infarction, transthoracic echocardiography (TTE) and transesophageal echocardiography (TEE) were performed. The TTE was normal with no embolic source. There was no intracardiac shunt or thrombus in the left atrium (LA) or LA appendage on TEE examination. However, a 1.5×0.7 cm sized, highly mobile mass lesion with a moderate degree of atheroma was found in the descending thoracic aorta (arrow, **Figure 1** and **Supplementary Video 1**). A linear, non-enhanced, low-attenuated mass lesion suggesting a thrombus was found at the distal aortic arch on contrast-enhanced spiral aorta computerized tomography scan (arrow, **Figure 2**). The attending neurologist and cardiologist discussed possible treatment for cerebral infarction and the aortic lesion. We concluded that the use of subcutaneous low-molecular weight heparin (Fraxiparine®, 4,750 units per 12 hours; Sanofi India Ltd., Mumbai, India) rather than thrombolytic therapy was indicated to avoid the risk of sudden thromboembolic events due to abrupt detachment of the thrombus. Because of an increased risk of thromboembolism, the patient was closely monitored in the intensive care unit for 10 days. The huge free-floating mass disappeared on follow-up TEE examination after 2 weeks of anticoagulation therapy (**Figure 3** and **Supplementary Video 2**). Because the mass showed an echogenic surface with echolucent core and disappeared with a short duration of

Figure 1. On the transesophageal echocardiographic examination, a 1.5×0.7 cm sized, highly mobile mass lesion is found in the descending thoracic aorta (arrow).

Figure 2. A linear, non-enhanced, low-attenuated mass lesion suggesting a thrombus is found at the distal aortic arch on contrast-enhanced spiral aorta computerized tomography scan (arrow, A: axial view, B: coronal view).

Figure 3. The huge free-floating mass disappeared on the follow-up transesophageal echocardiographic examination after 2 weeks of anticoagulation therapy.

anticoagulation therapy, we thought the mass was a fresh thrombus. The patient showed a favorable clinical outcome and was discharged on a warfarin regimen.

Recently, the aorta has been focused on as a potential source of cerebral and peripheral embolisms.¹⁾ Aortic thrombi usually adhere to arteriosclerotic lesions or aneurysms and mainly progress from the abdominal aorta. An aortic atherosclerotic plaque may serve as an origin for thrombus formation. However, aortic thrombi have also been found in normally appearing aortas. The presence of thrombi in the descending thoracic aorta is much less common, particularly when there is no concomitant atherosclerotic disease or aneurysm. Aortic thrombi occur more commonly in elderly patients, patients with several cardiovascular risk factors and severe aortic atherosclerosis.²⁾ Our patient was 48 years old with a low cardiovascular risk. On testing for hypercoagulability, protein S deficiency was found. Thus, we hypothesized that our patient's mobile thrombus in the descending thoracic aorta resulted from increased thrombogenicity and the thrombus attached to the localized atherosclerotic plaque in the descending thoracic aorta. It was unclear whether there was any

link between her index event (cerebrovascular accident) and the descending thoracic aortic thrombus. However, atherosclerotic disease, especially with a mobile atheroma in the aortic arch, has been closely associated with ischemic stroke events.³⁾ Because the thrombus was just attached to the distal part of the aortic arch, ischemic stroke could have been caused by emboli from the highly mobile thrombus due to backflow into the aortic arch vessels during the diastolic period.

The optimal treatment for aortic thrombi has not been well-defined. Thus, several treatment options have been suggested, including anticoagulant therapy, thrombolysis, and surgery for management of aortic thrombus. In our case, we cautiously initiated immediate anticoagulation therapy with heparin.

Surgical treatment can be considered for patients with recurrent embolism or persistent thrombus despite proper anticoagulation treatment. Patient prognosis is mainly determined by the consequences brought on by the embolism. In our case, the patient showed a favorable clinical outcome and was discharged without any sequelae.

SUPPLEMENTARY MATERIALS

Supplementary Video 1

The online-only Data Supplement is available with article at (<https://e-kcj.org/src/sm/kcj-47-978-s001.avi>).

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Supplementary Video 2

The online-only Data Supplement is available with article at (<https://e-kcj.org/src/sm/kcj-47-978-s002.avi>).

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